
alphaE-catenin inhibits YAP/TAZ activity to regulate signalling centre formation during tooth development.

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Public Summary:

Embryonic signalling centres are specialized clusters of non-proliferating cells that direct the development of many organs. However, the mechanisms that establish these essential structures in mammals are not well understood. Here we report, using the murine incisor as a model, that alphaE-catenin is essential for inhibiting nuclear YAP localization and cell proliferation. This function of alphaE-catenin is required for formation of the tooth signalling centre, the enamel knot (EK), which maintains dental mesenchymal condensation and epithelial invagination. EK formation depends primarily on the signalling function of alphaE-catenin through YAP and its homologue TAZ, as opposed to its adhesive function, and combined deletion of Yap and Taz rescues the EK defects caused by loss of alphaE-catenin. These findings point to a developmental mechanism by which alphaE-catenin restricts YAP/TAZ activity to establish a group of non-dividing and specialized cells that constitute a signalling centre.

Scientific Abstract:

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